i915GV2-LEI

Intel® 915GV µFC-PGA 478 Pentium® M / Celeron® M Mini ITX Main Board

User's Manual

Ver. 1.00

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Safety Information

Electrical safety

- To prevent electrical shock hazard, disconnect the power cable from the electrical outlet before relocating the system.
- When adding or removing devices to or from the system, ensure that the power cables for the devices are unplugged before the signal cables are connected. If possible, disconnect all power cables from the existing system before you add a device.
- Before connecting or removing signal cables from the motherboard, ensure that all power cables are unplugged.
- Seek professional assistance before using an adapter or extension cord. These devices could interrupt the grounding circuit.
- Make sure that your power supply is set to the correct voltage in your area. If you are not sure about the voltage of the electrical outlet you are using, contact your local power company.
- If the power supply is broken, do not try to fix it by yourself. Contact a qualified service technician or your retailer.

Operation safety

- Before installing the motherboard and adding devices on it, carefully read all the manuals that came with the package.
- Before using the product, make sure all cables are correctly connected and the power cables are not damaged. If you detect any damage, contact your dealer immediately.
- To avoid short circuits, keep paper clips, screws, and staples away from connectors, slots, sockets and circuitry.
- Avoid dust, humidity, and temperature extremes. Do not place the product in any area where it may become wet.
- Place the product on a stable surface.
- If you encounter technical problems with the product, contact a qualified service technician or your retailer.

The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Check local regulations for disposal of electronic products.

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance. Visit the Advansus website for FAQ, technical guide, BIOS updates, driver updates, and other information:

http://www.advansus.com.tw/Support/Support.asp

Conventions Used in This Guide

To make sure that you perform certain tasks properly, take note of the following symbols used throughout this manual.

DANGER/WARNING: Information to prevent injury to yourself when trying to complete a task.

CAUTION: Information to prevent damage to the components when trying to complete a task.

IMPORTANT: Instructions that you MUST follow to complete a task.

NOTE: Tips and additional information to help you complete a task.

Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- ✓ 1 x Intel 915GV Mini ITX Main board
- ✓ 1 x CD-ROM contains the followings:
  - User's manual (this manual in PDF file)
  - Drivers
- ✓ 1 x IDE HDD cable (44-pin to 40-pin)
- ✓ 2 x SATA cable (7-pin)
- ✓ 1 x Startup Manual

If any of the above items is damaged or missing, please contact your retailer.

Revision History

Revision	Revision History	Date
V 1.0	First release for PCB 1.00	September 07, 2007

Specifications Summary

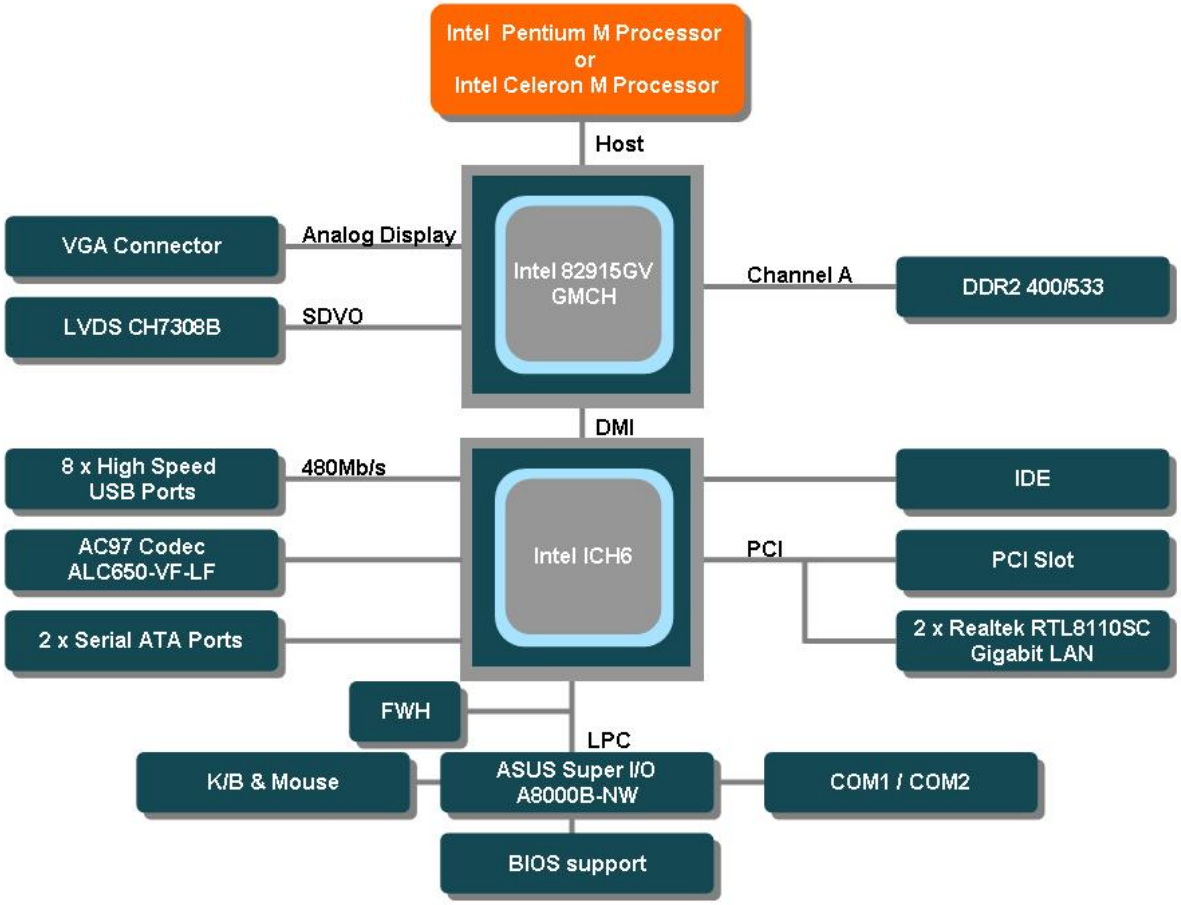
Features	1	Supports Intel µFC-PGA 478 Pentium M / Celeron M CPU with 90nm process technology
	2	Intel® 82915GV Express Chipset
	3	One 240-pin DIMM up to 1 GB DDR2 400/533 SDRAM
	4	Intel® Graphics Media Accelerator 900
	5	Chrontel CH7308B Dual 24Bit LVDS
	6	Realtek ALC650 5.1 Ch. Audio
	7	Dual Realtek RTL8110SC Gigabit LAN
	8	2 COM, 2 SATA, 8 USB 2.0
System		
CPU		Supports Intel µFC-PGA 478 Pentium M / Celeron M CPU with 90nm process technology
FSB		400/533 MHz
BIOS		Award 4 Mb Flash ROM BIOS
System Chipset		Intel 82915GV GMCH/82801FB ICH6
I/O Chipset		ASUS A8000B-NW
Memory		One 240-pin DIMM socket supports up to 1 GB DDR2 400/533 SDRAM
H/W Status Monitor		Monitoring CPU temperature and cooling fan status. Auto throttling control when CPU overheats
Expansion Slots		One PCI slot (PCI Rev. 2.2 compliant)
S3		S3 Support
I/O		
MIO		1 x EIDE (Ultra DMA 100), 2 x SATA, 2 RS-232, 1 x K/B, 1 x Mouse (COM1,2 with Power output)
USB		8 x USB 2.0

Specifications Summary

I/O	
Internal I/O	2 x USB connectors support additional 4 USB ports 1 x 20-pin ATX Power connector 1 x 44-pin IDE connector for two devices 1 x LVDS connector 1 x Inverter Power connector 1 x CD-In conectors 2 x SATA connectors 1 x System panel connector 1 x CPU Fan connector and 1 x System Fan or NB connector
Back Panel	1 x PS/2 Keyboard and 1 x PS/2 Mouse 2 x RS-232 Serial Port 1 x VGA port 2 x LAN RJ45 port 4 x USB 2.0/1.1 5.1 CH Audio I/O (3 jacks)
Display	
Chipset	Intel® 82915GV GMCH integrated Graphics Media Accelerator 900
Display Memory	Intel® DVMT 3.0 supports up to 128 MB video memory
Resolution	2048 x 1536 @ 32 bpp (85 Hz)
LVDS	Chrontel CH7308B LVDS transmitter up to 24 bit/140M pixels/second
Audio	
AC97 Codec	Realtek ALC650, 6 CH Audio Codec
Audio Interface	Mic in, Line in, CD Audio in, Line out
Ethernet	
LAN1 and LAN2	Dual Realtek RTL8110SC Gigabit LAN
Mechanical & Environmental	
Power Requirement	+5 V @ 3.34 A, +12 V @ 0.09 A, +3.3 V @ 3.74 A, 5 Vsb @ 0.23 A (with Intel® Pentium® M 1.8 GHz & 256 MB DDR SDRAM)
Power Type	ATX
Operating Temperature	0 ~ 60°C (32 ~ 140°F)
Operating Humidity	0% ~ 90% relative humidity, non-condensing
Size (L x W)	6.69" x 6.69" (170 mm x 170 mm)
Weight	0.88 lbs (0.4 Kg)

* Specifications are subject to change without notice.

Block Diagram



This chapter describes the main board features and the new technologies it supports.

1 Product introduction

Production Introduction

1.1 Before you Proceed

Take note of the following precautions before you install motherboard components or change any motherboard settings.

- Unplug the power cord from the wall socket before touching any component.
- Use a grounded wrist strap or touch a safely grounded object or a metal object, such as the power supply case, before handling components to avoid damaging them due to static electricity
- Hold components by the edges to avoid touching the ICs on them.
- Whenever you uninstall any component, place it on a grounded antistatic pad or in the bag that came with the component.
- Before you install or remove any component, ensure that the ATX power supply is switched off or the power cord is detached from the power supply. Failure to do so may cause severe damage to the motherboard, peripherals, and/or components.

1.2 Motherboard Overview

Before you install the motherboard, study the configuration of your chassis to ensure that the motherboard fits into it. Refer to the chassis documentation before installing the motherboard.

Make sure to unplug the power cord before installing or removing the motherboard. Failure to do so can cause you physical injury and damage motherboard components.

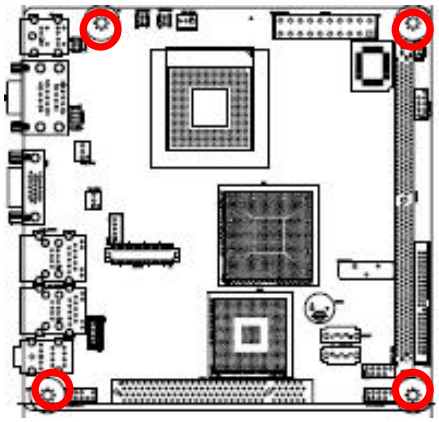
1.2.1 Placement Direction

When installing the motherboard, make sure that you place it into the chassis in the correct orientation. The edge with external ports goes to the rear part of the chassis as indicated in the image below.

1.2.2 Screw Holes

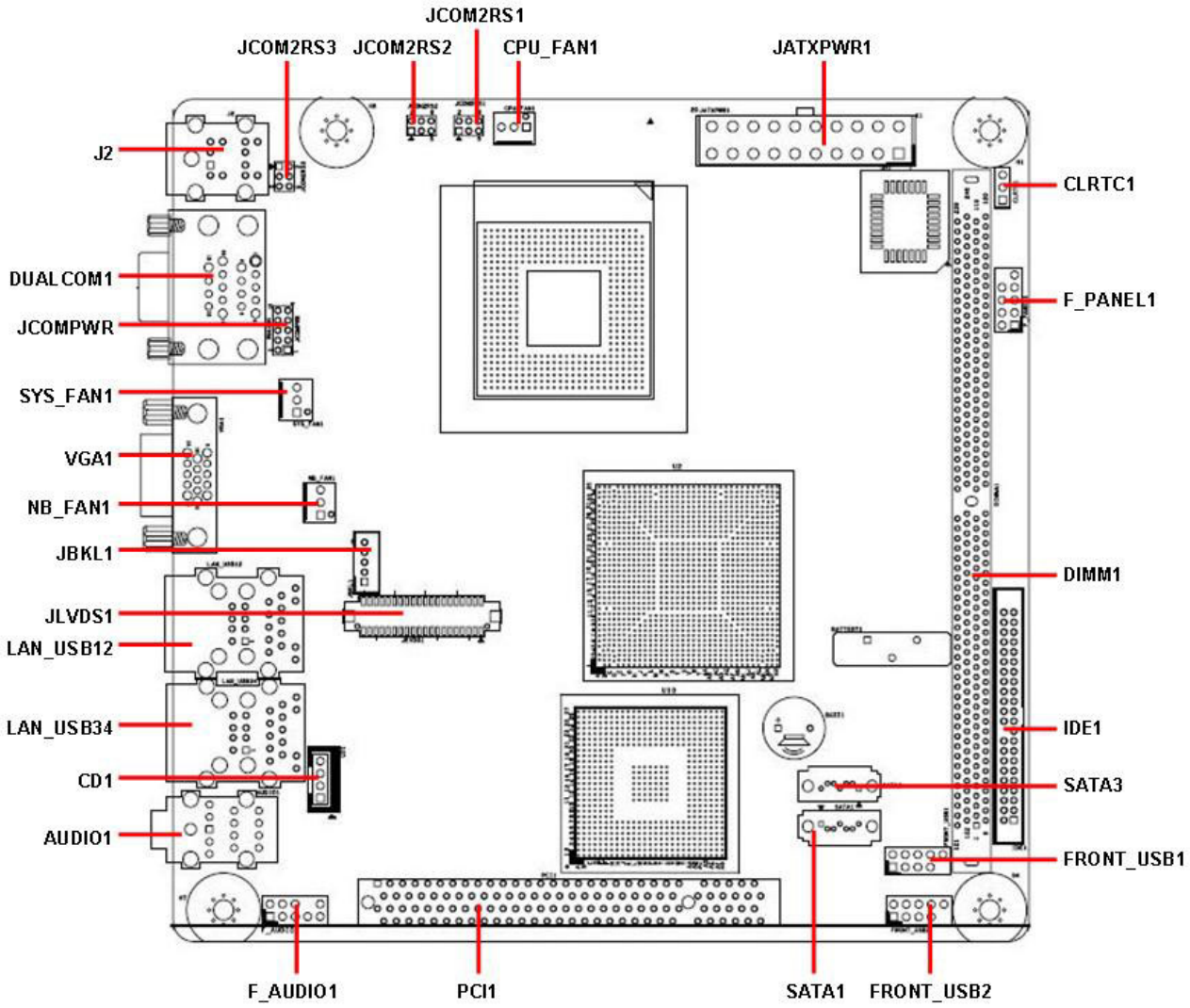
Place four (4) screws into the holes indicated by circles to secure the motherboard to the chassis.

Do not over tighten the screws! Doing so can damage the motherboard.



Place this side towards the rear of the chassis

1.3 Motherboard Layout



1.3.1 Layout Content List

Slots			
Label	**Function**	**Note**	**Page**
DIMM1	240-pin DDR2 DIMM slot		N/A
PCI1	PCI slot		N/A

Jumpers			
Label	**Function**	**Note**	**Page**
CLRTC1	Clear RTC RAM	3 x 1 header, pitch 2.00mm	27
JCOMPWR	COM port RI/+5V/+12V selection	5 x 2 header, pitch 2.00mm	28
JCOM2RS1,2,3	COM2 RS-232/422/485 Select	3 x 2 header, pitch 2.00mm	28,29

Rear Panel Connector			
Label	**Function**	**Note**	**Page**
J2	PS/2 keyboard and mouse	6-pin Mini-Din	30
DUALCOM1	Serial port connector x 2	D-sub 9-pin, male	30
VGA1	VGA port	D-sub 15-pin, female	30
LAN_USB12	RJ-45 Ethernet connector x 1 USB connector x 2		30,31
LAN_USB34	RJ-45 Ethernet connector x 1 USB connector x 2		30,31
AUDIO1	Line-in port, Line-out port, Microphone port,	8-Channel Audio I/O (3 jacks)	31

Internal Connector			
Label	**Function**	**Note**	**Page**
CD1	Optical drive audio connector	4 x 1 header, pitch 2.54mm	32
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm	32
NB_FAN1	(Reserved)	3 x 1 wafer, pitch 2.54mm	N/A
SYS_FAN1	System fan connector	3 x 1 wafer, pitch 2.54mm	33
F_AUDIO1	Front headphone connector	10 x 1 header, pitch 2.54mm	33
F_PANEL1	System panel connector	5 x 2 header, pitch 2.54mm	34
FRONT_USB1	USB 2.0 connector	5 x 2 header, pitch 2.54mm	35
FRONT_USB2	USB 2.0 connector	5 x 2 header, pitch 2.54mm	35
IDE1	Primary IDE connector	22 x 2 header, pitch 2.00mm	36
JATXPWR1	ATX power connector	10 x 2 header	36
JBKL1	LCD Inverter connector	5 x 1 header, pitch 2.00mm	37
JLVDS1	LVDS connector	HIROSE DF13S-40DP-1.25V	37
SATA1	Serial ATA connectors [black]	7-pin header	38
SATA3	Serial ATA connectors [blue]	7-pin header	38

1.4 Central Processing Unit (CPU)

The motherboard comes with a surface mount 479-pin Zero Insertion Force (ZIF) socket designed for the Intel® Pentium® M / Celeron M processor (Supports mPGA479M, Micro-FCPGA).

Take one of the marked corner (with gold triangle) on the CPU. This mark should match a specific corner on the socket to ensure correct installation.

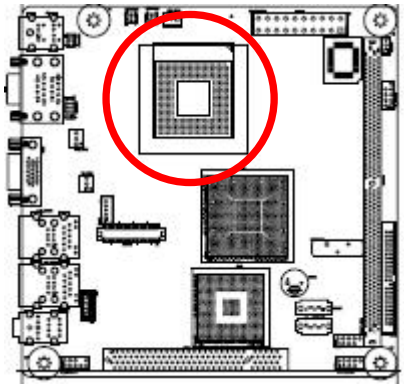
- Make sure the AC power is off before you install the CPU.
- If installing a dual-core CPU, connect the CPU fan cable to the **CPU_FAN1** connector to ensure system stability.

- Your boxed Intel® Pentium® M / Celeron M processor (supports mPGA479M, Micro-FCPGA) package should come with installation instructions for the CPU, heatsink, and the retention mechanism. If the instructions in this section do not match the CPU documentation, follow the latter.
- Upon purchase of the motherboard, make sure that the PnP cap is on the socket and the socket contacts are not bent. Contact your retailer immediately if the PnP cap is missing, or if you see any damage to the PnP cap/socket contacts/motherboard components. Your place of purchase or local distributor will shoulder the cost of repair only if the damage is shipment/transit-related.
- Keep the cap after installing the motherboard. Your place of purchase or local distributor will process Return Merchandise Authorization (RMA) requests only if the motherboard comes with the cap on the socket.
- The product warranty does not cover damage to the socket contacts resulting from incorrect CPU installation/removal, or misplacement/loss/ incorrect removal of the PnP cap.

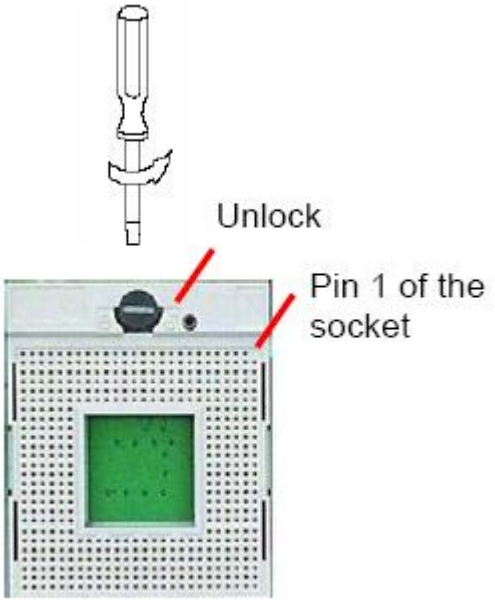
1.4.1 Installing the CPU

1. Locate the CPU socket on the motherboard.

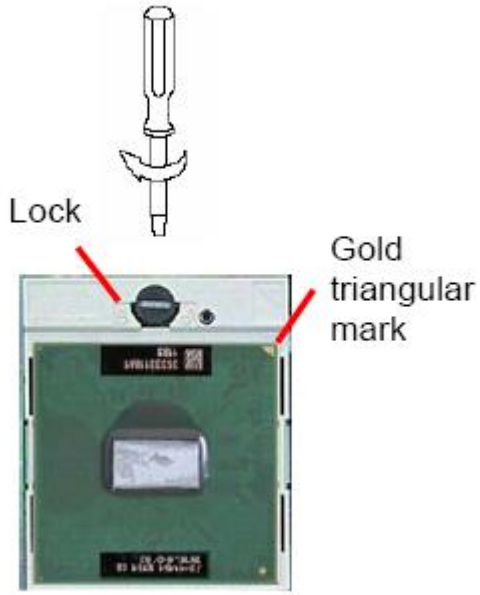
Before installing the CPU, make sure that the socket box is facing towards you.



2. The processor socket comes with a screw to secure the processor, please unlock the screw first.



3. Position the CPU above the socket and the gold triangular mark on the CPU must align with pin 1 of the CPU socket.
4. Carefully insert the CPU into the socket until it fits in place 'Gold mark'.
5. Turn the screw to the lock position.



The CPU fits in only one correct orientation. DO NOT force the CPU into the socket to prevent bending the connectors on the socket and damaging the CPU.

After installation, make sure to plug-in the ATX power cable to the motherboard.

This motherboard support Celeron M3 series or Pentium M7 series CP

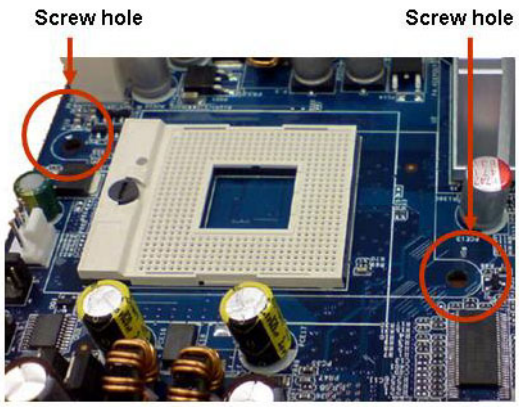
1.4.2 Installing the CPU Heatsink and Fan

The Intel® Pentium® M / Celeron M processor (supports mPGA479M, Micro-FCPGA) requires a specially designed heatsink and fan assembly to ensure optimum thermal condition and performance.

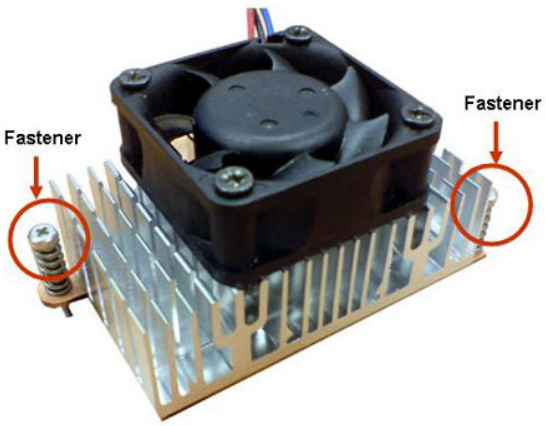
- Install the motherboard to the chassis before you install the CPU fan and heatsink assembly.
- When you buy a boxed Intel® processor, the package includes the CPU fan and heatsink assembly. If you buy a CPU separately, make sure that you use only Intel®-certified multi-directional heatsink and fan.

If you purchased a separate CPU heatsink and fan assembly, make sure that you have properly applied Thermal Interface Material to the CPU heatsink or CPU before you install the heatsink and fan assembly.

1. Place the heatsink on top of the installed CPU, making sure that the two fasteners match the holes on the motherboard.

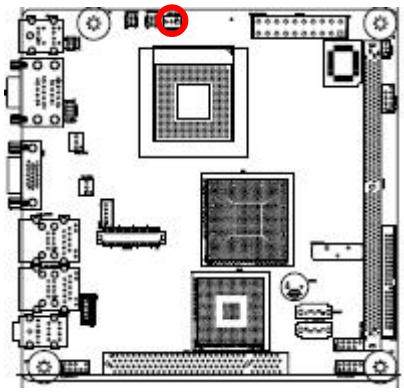


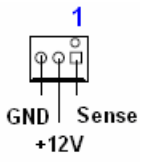
Orient the heatsink and fan assembly such that the CPU fan cable is closest to the CPU fan connector.



Make sure each fastener is oriented as shown, with the narrow groove directed outward.

2. Connect the CPU fan cable to the connector on the motherboard labelled **CPU_FAN1**.

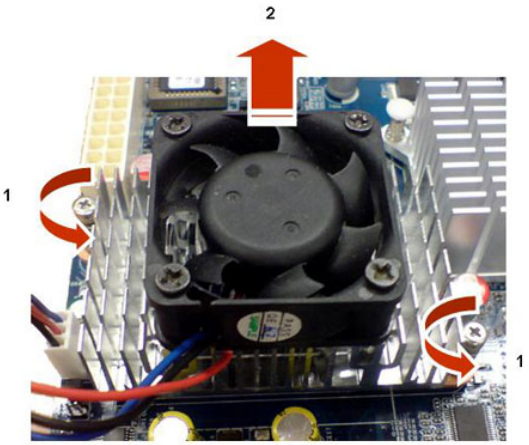




- Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.
- These are not jumpers! DO NOT place jumper caps on the fan connectors.

1.4.3 Uninstalling the CPU Heatsink and Fan

1. Disconnect the CPU fan cable from the connector on the motherboard.
2. Rotate each fastener counterclockwise.
3. Carefully remove the heatsink and fan assembly from the motherboard.



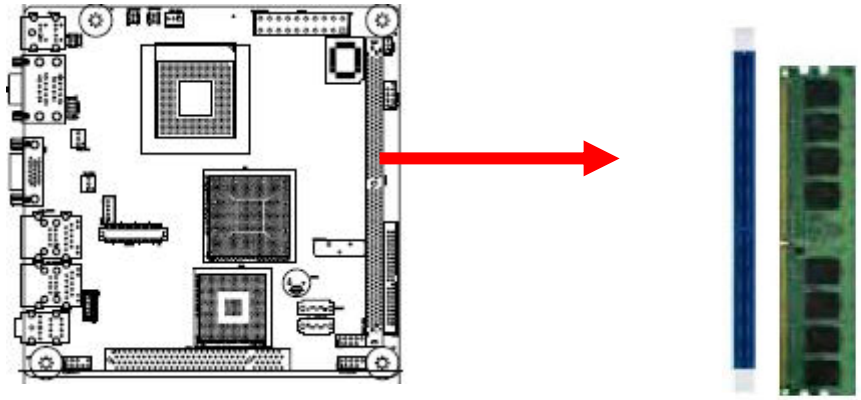
Refer to the documentation in the boxed or stand-alone CPU fan package for detailed information on CPU fan installation.

1.5 System Memory

1.5.1 DIMM Sockets Location

The motherboard comes with four 240-pin Double Data Rate 2 (DDR2) Dual Inline Memory Modules (DIMM) sockets.

A DDR2 module has the same physical dimensions as a DDR DIMM but has a 240-pin footprint compared to the 184-pin DDR DIMM. DDR2 DIMMs are notched differently to prevent installation on a DDR DIMM socket. The following figure illustrates the location of the sockets:



1.5.2 Memory Configurations

You can install 128 MB, 256 MB, 512 MB, and 1GB DDR2 SDRAM DIMMs into the DIMM sockets using the memory configurations in this section.

- Installing DDR2 DIMM other than the recommended configurations may cause memory sizing error or system boot failure. Use any of the recommended configurations.
- Always install DIMMs with the same CAS latency. For optimum compatibility, it is recommended that you obtain memory modules from the same vendor.
- Due to chipset resource allocation, the system may detect less than 1 GB system memory when you installed one 1 GB DDR2 memory modules.
- This motherboard does not support memory modules made up of 128 Mb chips or double-sided x16 memory modules.
- Make sure that the memory frequency matches the CPU FSB (Front Side Bus). Refer to the Memory frequency/CPU FSB synchronization table.

- Recommended memory configuration

Sockets	
Mode	DIMM1
Single-channel (1)	Installed

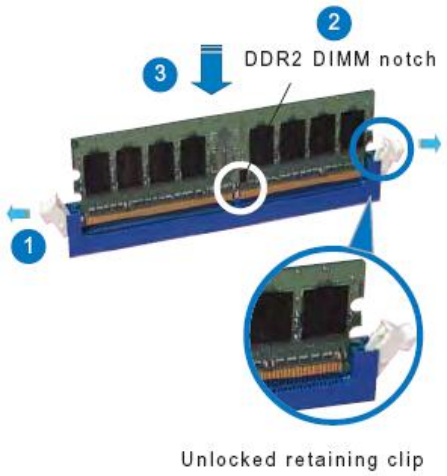
- Memory frequency/CPU FSB synchronization

CPU FSB	DDR 2 DIMM Type	Memory Frequency
533MHz	DDR2 533	533MHz
	DDR2 400	400MHz
400MHz	DDR2 533	400MHz
	DDR2 400	400MHz

1.5.3 Installing a DDR2 DIMM

Make sure to unplug the power supply before adding or removing DIMMs or other system components. Failure to do so may cause severe damage to both the motherboard and the components.

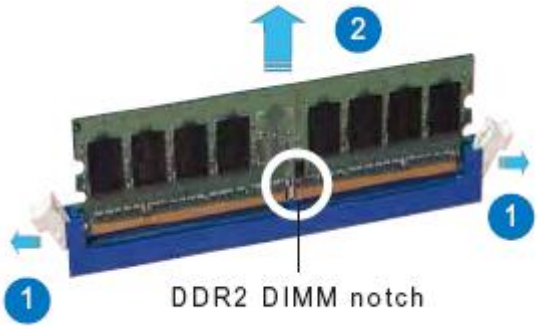
1. Unlock a DIMM socket by pressing the retaining clips outward
2. Align a DIMM on the socket such that the notch on the DIMM matches the break on the socket.
3. Firmly insert the DIMM into the socket until the retaining clips snap back in place and the DIMM.



- A DDR2 DIMM is keyed with a notch so that it fits in only one direction. DO NOT force a DIMM into a socket to avoid damaging the DIMM.
- The DDR2 DIMM sockets do not support DDR DIMMs. DO NOT install DDR DIMMs to the DDR2 DIMM socket.

1.5.4 Removing a DDR2 DIMM

1. Simultaneously press the retaining clips outward to unlock the DIMM.
2. Remove the DIMM from the socket.



Support the DIMM lightly with your fingers when pressing the retaining clips. The DIMM might get damaged when it flips out with extra force.

1.6 Expansion Slots

In the future, you may need to install expansion cards. The following sub-sections describe the slots and the expansion cards that they support.

Make sure to unplug the power cord before adding or removing expansion cards. Failure to do so may cause you physical injury and damage motherboard components.

1.6.1 Installing an Expansion Card

1. Before installing the expansion card, read the documentation that came with it and make the necessary hardware settings for the card.
2. Remove the system unit cover (if your motherboard is already installed in a chassis).
3. Remove the bracket opposite the slot that you intend to use. Keep the screw for later use.
4. Align the card connector with the slot and press firmly until the card is completely seated on the slot.
5. Secure the card to the chassis with the screw you removed earlier.
6. Replace the system cover.

1.6.2 Configuring an Expansion Card

After installing the expansion card, configure it by adjusting the software settings.

1. Turn on the system and change the necessary BIOS settings if any.
2. Assign an IRQ to the card if needed. Refer to the tables on the next page.
3. Install the software drivers for the expansion card.

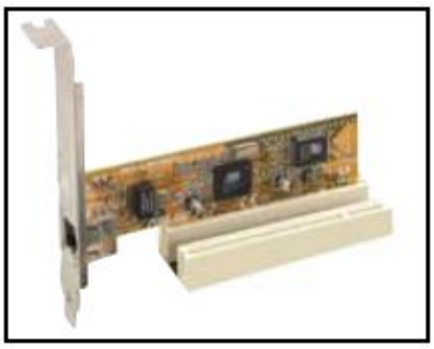
1.6.3 Standard Interrupt Assignments

IRQ	Priority	Standard Function
0	1	System Timer
1	2	Keyboard Controller
2	-	Redirect to IRQ#9
3	11	IRQ holder for PCI streering*
4	12	Communications Port (COM1)*
5	13	IRQ holder for PCI streering*
6	14	Floppy Disk Controller
7	15	Printer Port (LPT)*
8	3	System CMOS/Rear Time
9	4	IRQ holder for PCI streeing*
10	5	IRQ holder for PCI streeing*
11	6	IRQ holder for PCI streeing*
12	7	PS/2 Compatible Mouse Port*
13	8	Numeric Data Processor
14	9	Primary IDE Channel
15	10	Secondary IDE Channel

* There IRQs are usually available for ISA or PCI device.

1.6.4 PCI Slots

i915GV2-LEI has one PCI slots. The PCI slots support cards such as a LAN card, SCSI card, USB card, and other cards that comply with PCI specifications. The figure shows a LAN card installed on a PCI slot.



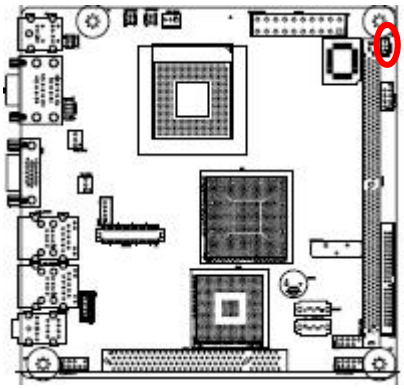
1.7 Jumpers

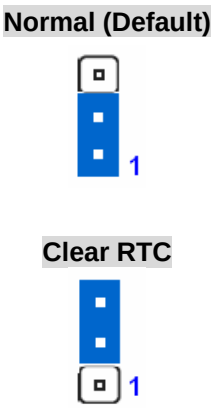
1.7.1 Clear CMOS (CLRTC)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which include system setup information such as system passwords. To erase the RTC RAM:

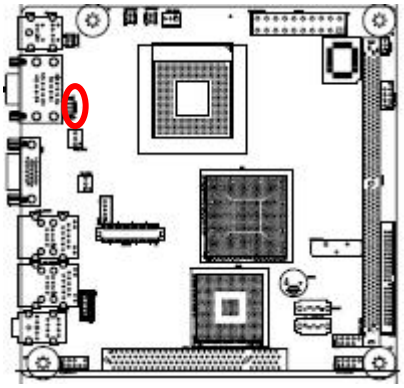
1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper cap from pins 1-2 (default) to pins 2-3. Keep the cap on pins 2-3 for about 5~10 seconds, then move the cap back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Except when clearing the CMOS, never remove the cap on CLRTC jumper default position. Removing the cap will cause system boot failure!

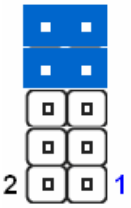




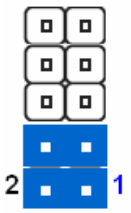
1.7.2 COM Port RI/+5V/+12V Selection (JCOMPWR)



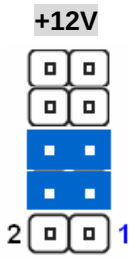
Ring (Default)



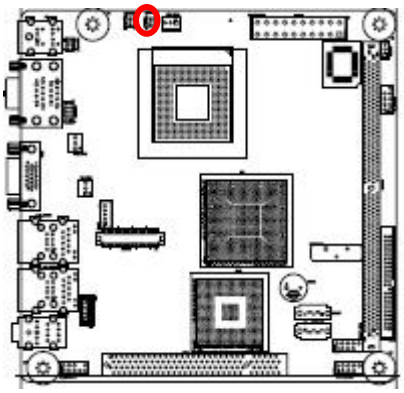
+5V



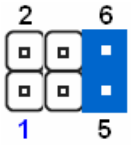
+12V



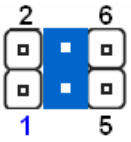
1.7.3 COM2 RS-232/422/485 Select (JCOM2RS1)



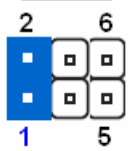
RS-232 (Default)



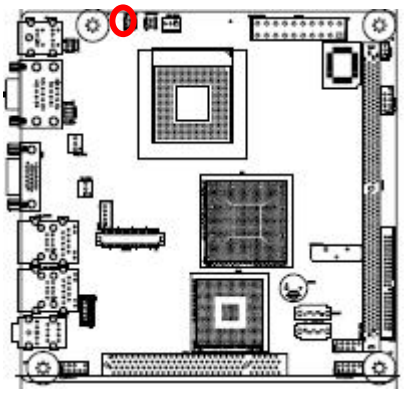
RS-422



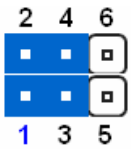
RS-485



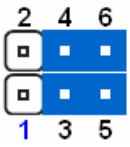
1.7.4 COM2 RS-232/422/485 Select (JCOM2RS2)



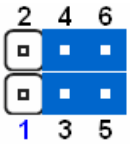
RS-232 (Default)



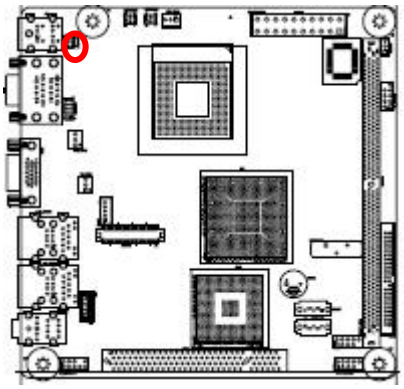
RS-422



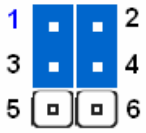
RS-485



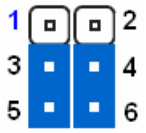
1.7.5 COM2 RS-232/422/485 Select (JCOM2RS3)



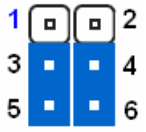
RS-232 (Default)



RS-422

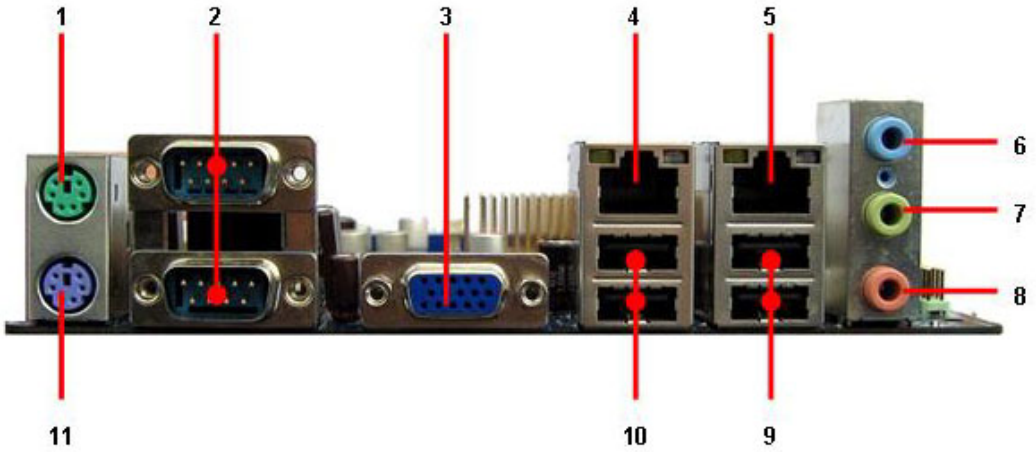


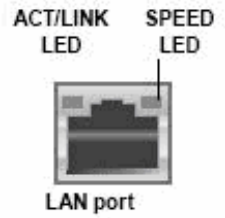
RS-485



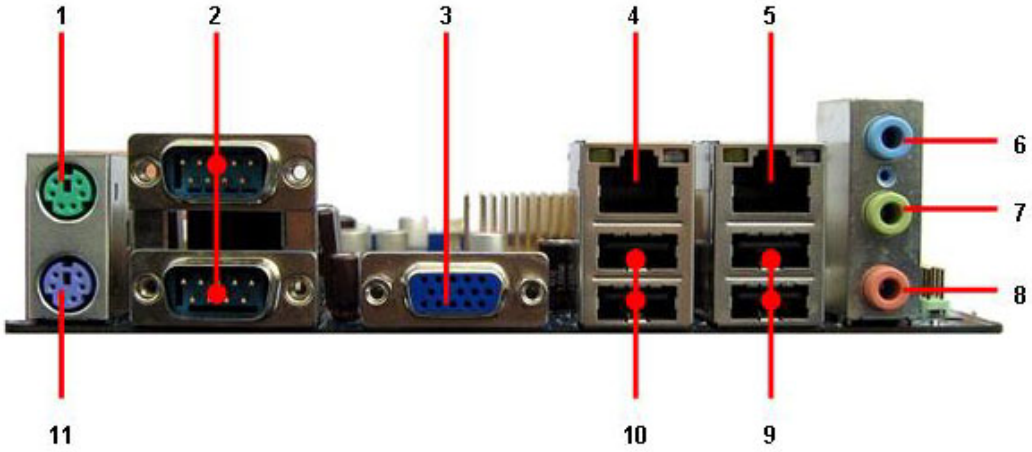
1.8 Connectors

1.8.1 Rear Panel Connectors



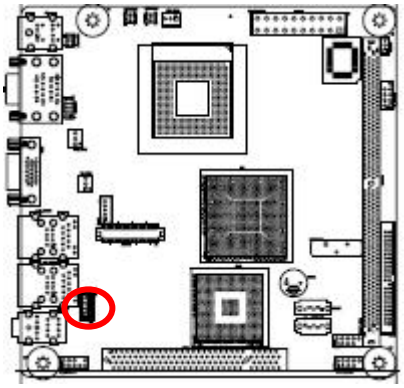
No	Label	Function	Description
1	J2	PS/2 mouse connector	The standard PS/2 mouse DIN connector is for a PS/2 mouse.
2	DUALCOM1	Serial port connector x 2	
3	VGA1	VGA port	This 15-pin port is for a VGA monitor or other VGA-compatible devices.
4,5	LAN_USB12, LAN_USB34	LAN (RJ-45) connector 	This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications. The optional 10/100 Mbps LAN controller allows 10/100 Mbps connection to a Local Area Network (LAN) through a network hub.

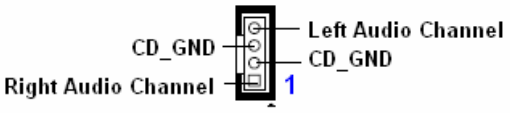
ACT / LINK LED		SPEED LED	
Status	Description	Status	Description
OFF	No link	OFF	10Mbps connection
Orange	Linked	ORANGE	100Mbps connection
Blinking	Data activity	GREEN	1Gbps connection



No	Label	Function	Description
6	AUDIO1	Line-In port (Light Blue).	This port connects a tape, CD, DVD player, or other audio sources.
7	AUDIO1	Line-Out port (Lime)	This port connects a headphone or a speaker. In 4-channel, 6-channel, and 8-channel configuration, the function of this port becomes Front Speaker Out.
8	AUDIO1	Microphone port (Pink)	This port connects a microphone.
9,10	LAN_USB12, LAN_USB34	USB 2.0 connector	These two 4-pin Universal Serial Bus (USB) ports are available for connecting USB 2.0 devices.
11	J2	PS/2 KB connector	This port is for a PS/2 keyboard

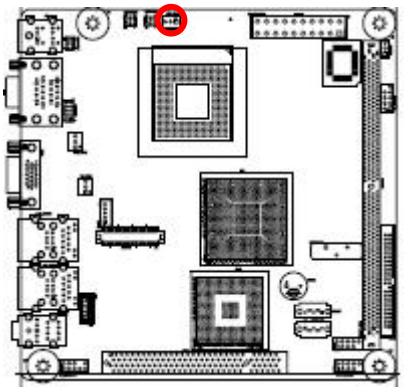
1.8.2 Optical Driver Audio Connector (CD1)

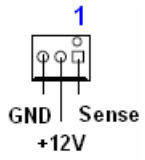




Enable the CD-IN function in the audio utility when using this connector.

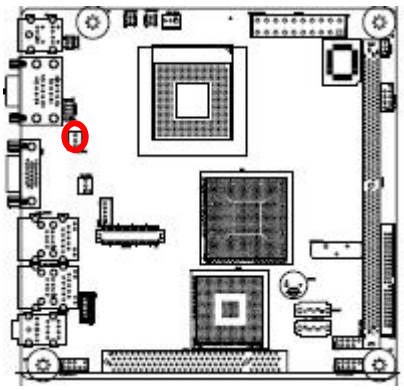
1.8.3 CPU Fan Connector (CPU_FAN1)

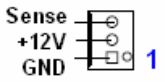




- Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.
- These are not jumpers! DO NOT place jumper caps on the fan connectors.

1.8.4 System Fan Connector (SYS_FAN1)

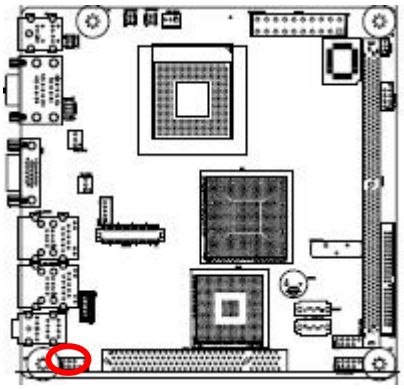


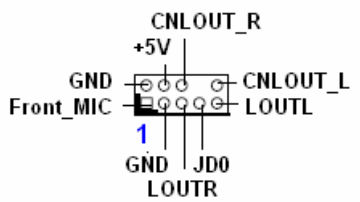


- Do not forget to connect the fan cables to the fan connectors. Insufficient air flow inside the system may damage the motherboard components, and hardware monitoring errors can occur if you fail to plug this connector.
- These are not jumpers! DO NOT place jumper caps on the fan connectors.

1.8.5 Front Headphone Connector (F_AUDIO1)

This connector is for a chassis-mounted front panel audio I/O module that supports either HD Audio or legacy AC '97 (optional) audio standard. Connect one end of the front panel audio I/O module cable to this connector.

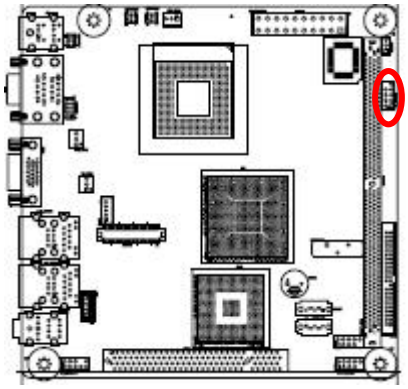


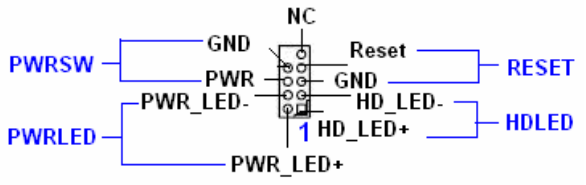


For motherboards with the optional HD Audio feature, we recommend that you connect a high-definition front panel audio module to this connector to avail of the motherboard's high-definition audio capability.

1.8.6 System Panel Connector (F_PANEL1)

This connector supports several chassis-mounted functions.

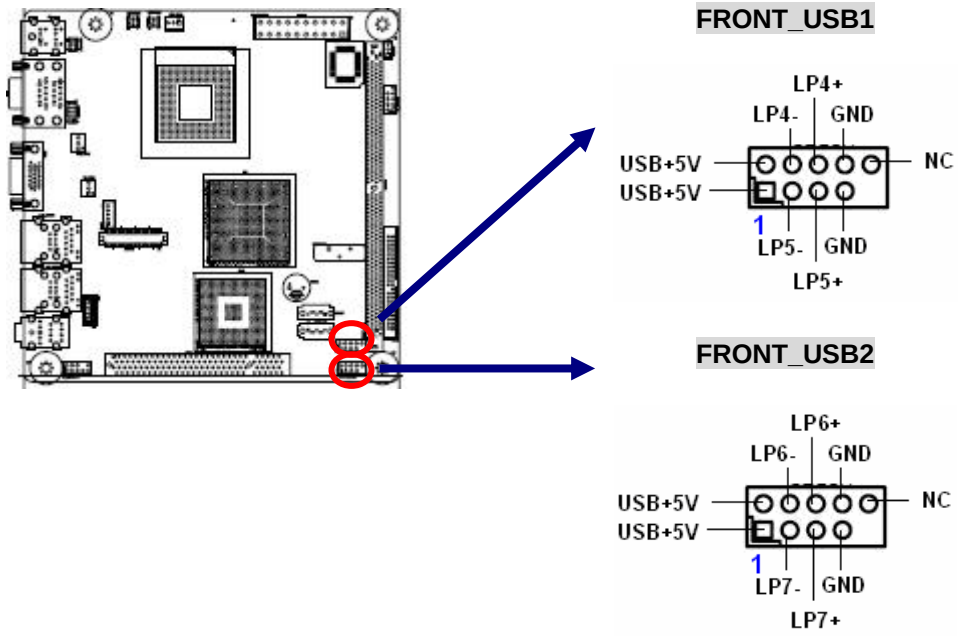




- **System Power LED (2-pin PWRLED)**
  This 2-pin connector is for the system power LED. Connect the chassis power LED cable to this connector. The system power LED lights up when you turn on the system power, and blinks when the system is in sleep mode.
- **ATX Power Button/Soft-off Button (2-pin PWRSW)**
  This connector is for the system power button. Pressing the power button turns the system on or puts the system in sleep or soft-off mode depending on the BIOS settings. Pressing the power switch for more than four seconds while the system is ON turns the system OFF.
- **Hard Disk Drive Activity LED (2-pin HDLED)**
  This 2-pin connector is for the HDD Activity LED. Connect the HDD Activity LED cable to this connector. The IDE LED lights up or flashes when data is read from or written to the HDD.
- **Reset Button (2-pin RESET)**
  This 2-pin connector is for the chassis-mounted reset button for system reboot without turning off the system power.

1.8.7 USB 2.0 Connector (FRONT_USB1, FRONT_USB2)

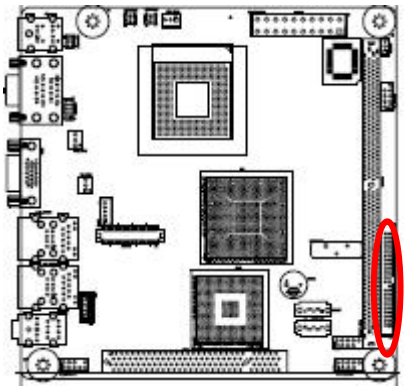
These connectors are for USB 2.0 ports. Connect the USB/GAME module cable to any of these connectors, then install the module to a slot opening at the back of the system chassis. These USB connectors comply with USB 2.0 specification that supports up to 480 Mbps connection speed.

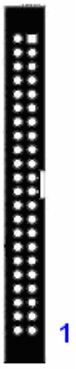


Never connect a **1394 cable** to the USB connectors. Doing so will damage the motherboard!

The USB module is purchased separately.

1.8.8 Primary IDE Connector (IDE1)

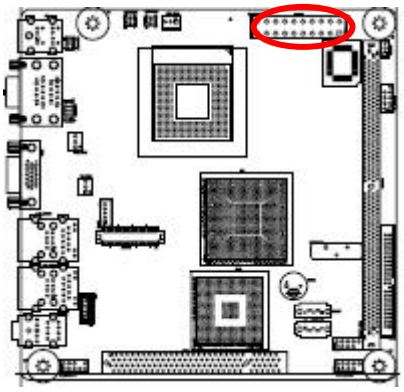


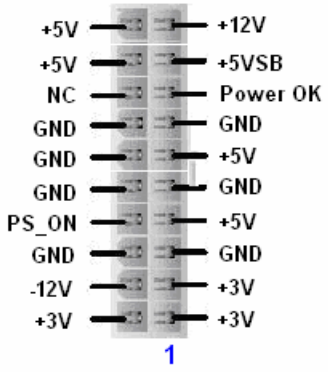


- Orient the red markings (usually zigzag) on the IDE cable to Pin 1.

1.8.9 ATX Power Connector (JATXPWR1)

This connector is for an ATX Micro-Fit power supply. The plugs from the power supply are designed to fit these connectors in only one orientation. Find the proper orientation and push down firmly until the connectors completely fit.

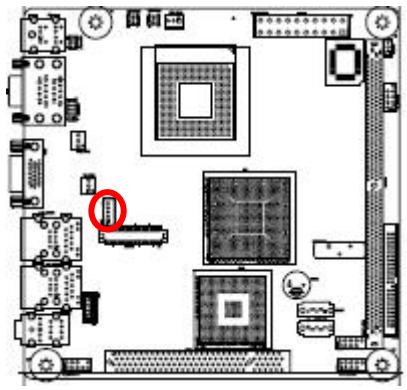


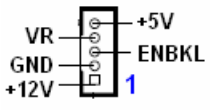


Important notes on the Motherboard Power Requirements

- Make sure that your ATX 12V power supply can provide 8A on the +12V lead and at least 1A on the +5-volt standby lead (+5VSB). The minimum recommended wattage is 230W, or 300W for a fully configured system. The system can become unstable and might experience difficulty powering up if the power supply is inadequate.
- You must install a PSU with a higher power rating if you intend to install additional devices.

1.8.10 LCD Inverter Connector (JBKL1)

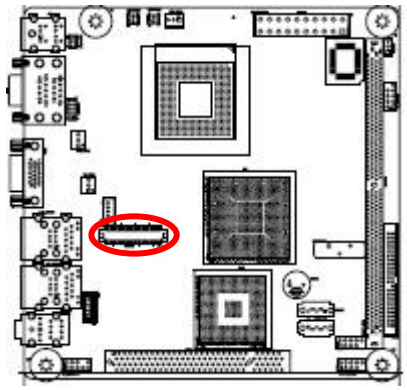


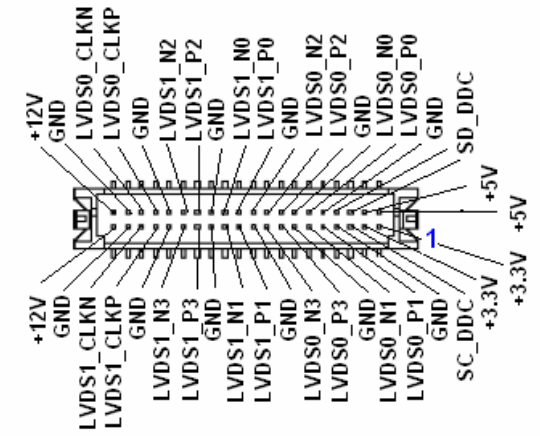


- **Signal Description**

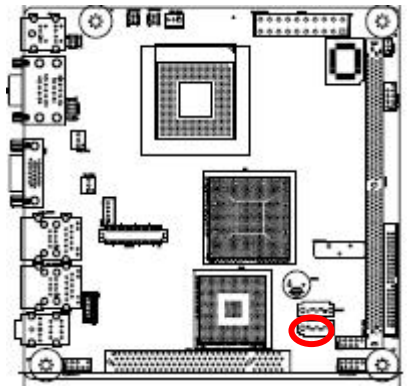
Signal	Signal Description
VR	Vadj=0.75V ~ 4.25V (Recommended: 4.7KΩ, > 1/16W)
ENBKL	LCD backlight ON/OFF control signal

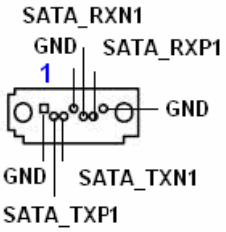
1.8.11 LVDS Connector (JLVDS1)





1.8.12 Serial ATA Connector [Black] (SATA1)





- Install the Windows® 2000 Service Pack 4 or the Windows® XP Service Pack1 before using Serial ATA.
- When using the connectors in Standard IDE mode, connect the primary (boot) hard disk drive to the SATA1 connector.

1.8.13 Serial ATA Connector [Blue] (SATA3)